

ANSCO FORMULAS

If you prefer to mix your own developing and fixing solutions, you will find the following formulas easy to prepare and dependable in use. While these formulas include the most of those generally used, a booklet giving an extensive list of additional Ansco formulas may be obtained through your dealer or by writing direct to Ansco, Binghamton, New York.

Many of the formulas that follow are also available in packaged form, ready to use when dissolved in water. A partial list of these Ansco Prepared Formulas will be found on pages 48 and 49.

As you will note from the following formulas, nearly all developers have four basic constituents:

1. The developing agent (Metol or Hydroquinone) which actually does the work of converting the exposed silver salts to black, metallic silver;
2. The preservative (Sodium Sulfite) which keeps the developing agent from spoiling in solution;
3. The alkali (Sodium Carbonate) which takes part in the developing reaction by accelerating the developer;
4. The restrainer (Potassium Bromide) which keeps the developing action under control.

It is obvious that in mixing developers and other processing solutions you must weigh chemicals very carefully on a good balance to avoid errors that can have a serious effect on your photographic results. Dissolve the chemicals exactly in the order listed by the formula and do not try to dissolve the next chemical in the solution until the preceding addition is completely dissolved.

Film and paper processing solutions should be stored in full, tightly stoppered bottles to avoid loss of activity through oxidation. Acid hardening fixing solutions should also be kept in stoppered bottles, although they are less susceptible to damage by oxidation.

ANSCO 17

FINE-GRAIN BORAX TANK DEVELOPER

This is a fine-grain film developer recommended for all roll, pack and 35mm. films. It can also be used for obtaining soft gradation with portrait and press sheet films. This developer may be obtained in packaged form by ordering "Ansco 17."

	<i>Metric</i>	<i>Avoirdupois</i>
Hot Water (125 F. or 52 C.)	750 cc.	24 ounces
Metol	1.5 grams	22 grains
Sodium Sulfite, anhydrous	80 grams	2½ oz. 80 grs.
Hydroquinone	3 grams	44 grains
Borax	3 grams	44 grains
Potassium Bromide	.5 gram	7.5 grains
Water to make	1 liter	32 ounces

Do not dilute for use.

Developing time at 68 F. (20 C.), 10 to 15 minutes for fine-grain films, 12 to 20 minutes for portrait and press sheet films.

ANSCO 40

M-H TRAY DEVELOPER

This is a brilliant Metol-Hydroquinone tray developer for roll, pack and sheet film.

<i>Stock Solution</i>			
	<i>Metric</i>	<i>Avoirdupois</i>	
Hot Water (125 F. or 52 C.)	900 cc.	29	ounces
Metol	4.5 grams	66	grains
Sodium Sulfite, anhydrous	54 grams	1¾	oz. 25 grs.
Hydroquinone	7.5 grams	¼	ounce
Sodium Carbonate, monohydrated	54 grams	1¾	oz. 25 grs.
Potassium Bromide	3 grams	44	grains
Water to make	1 liter	32	ounces

For use dilute 1 part stock solution with 2 parts water.

Developing time 4 to 5 minutes at 68 F. (20 C.).

ANSCO 45**PYRO DEVELOPER**

This formula is recommended to those who prefer Pyro development for films. Stock solutions should be kept in stoppered bottles.

<i>Solution 1</i>	<i>Metric</i>	<i>Avoirdupois</i>
Sodium Bisulfite	9.8 grams	1/4 oz. 35 grs.
Pyro	60 grams	2 ounces
Potassium Bromide	1.1 grams	16 grains
Water to make	1 liter	32 ounces
<i>Solution 2</i>		
Sodium Sulfite, anhydrous	105 grams	3 1/2 ounces
Water to make	1 liter	32 ounces
<i>Solution 3</i>		
Sodium Carbonate, monohydrated	85 grams	2 3/4 oz. 40 grs.
Water to make	1 liter	32 ounces

TANK DEVELOPMENT: Take one part each Solutions 1, 2, 3 and add 11 parts water. Normal developing time, from 9 to 12 minutes at 68 F. (20 C.). **TRAY DEVELOPMENT:** Take 1 part each solutions 1, 2, 3 and 7 parts water. Normal developing time, from 6 to 8 minutes at 68 F. (20 C.). Solutions will keep well when stored separately but final developer should be used immediately after mixing.

ANSCO 47**METOL-HYDROQUINONE DEVELOPER**

This is a long-life, clean-working formula which will give excellent results for either tray or tank development. This developer may be obtained in package form by ordering "Anso 47."

	<i>Metric</i>	<i>Avoirdupois</i>
Hot Water (125 F. or 52 C.)	750 cc.	24 ounces
Metol	1.5 grams	22 grains
Sodium Sulfite, anhydrous	45 grams	1 1/2 ounces
Sodium Bisulfite	1 gram	15 grains
Hydroquinone	3 grams	44 grains
Sodium Carbonate, monohydrated	6 grams	88 grains
Potassium Bromide8 gram	12 grains
Water to make	1 liter	32 ounces

Do not dilute for use.*

TANK DEVELOPMENT: Normal developing time, 6 to 8 minutes at 68 F. (20 C.) with occasional agitation. **TRAY DEVELOPMENT:** Normal developing time 5 to 7 minutes at 68 F. (20 C.).

*For longer developing times with tank development, dilute 1 part developing solution with 1 part water and develop 12 to 16 minutes at 68 F.

ANSCO 64**RAPID M-H (TROPICAL) DEVELOPER**

This is a clean-working developer of particular value for rapid development or development at high temperatures.

	<i>Metric</i>	<i>Avoirdupois</i>
Hot Water (125 F. or 52 C.)	750 cc.	24 ounces
Metol	2.5 grams	36 grains
Sodium Sulfite, anhydrous	25 grams	3/4 oz. 40 grs.
Hydroquinone	6.5 grams	95 grains
Sodium Carbonate, monohydrated	16 grams	1/2 oz. 15 grs.
Potassium Bromide	1 gram	15 grains
Water to make	1 liter	32 ounces

Do not dilute for use.

Normal developing time — 3 to 4 minutes at 68 F. (20 C.).

2 to 3 minutes at 80 F (27 C.).

TIME-TEMPERATURE COEFFICIENTS

When it is impossible to maintain the temperature of the developing solution at 68 F., the following table of Time-Temperature Coefficients may be used to compensate for temperature variation by modification of developing time, so long as the temperature is not over 75 F. or under 60 F. If, for example, Ansco 17 is used at 75 F. with a film normally requiring 10 minutes development at 68 F., the developing time should be reduced 35% to 6 1/2 minutes in order to keep the contrast within the desired range.

<i>Developer</i>	<i>Percentage Change from Developing Time Used at 68 F.</i>	
	<i>60 F.</i>	<i>75 F.</i>
17	+65%	-35%
45	+50%	-30%
47	+65%	-35%
64	+75%	-25%

ANSCO 103**PAPER-DEVELOPER**

This formula is for use as a developer for Convira and Speedex papers when cold, blue-black tones are desired.

<i>Stock Solution</i>	<i>Metric</i>	<i>Avoirdupois</i>
Hot Water (125 F. or 52 C.)	750 cc.	24 ounces
Metol	3.5 grams	51 grains
Sodium Sulfite, anhydrous	45 grams	1 1/2 ounces
Hydroquinone	11.5 grams	1/4 oz. 50 grs.
Sodium Carbonate, monohydrated	78 grams	2 1/2 oz. 45 grs.
Potassium Bromide	1.2 grams	18 grains
Water to make	1 liter	32 ounces

PAPER DEVELOPMENT: Dilute one part stock solution with two parts water. For Speedex and Convira the normal developing time is 45 seconds. Other contact papers may require 1 to 1 1/2 minutes.

ANSCO 125

PAPER AND FILM DEVELOPER

This formula is suitable for development of Convira, Cykon, Brovira, Cykora, Indiatone and similar papers. It can also be used for development of roll, pack and sheet film when brilliant negatives are desired.

Stock Solution	Metric	Avoirdupois
Hot Water (125 F. or 52 C.)	750 cc.	24 ounces
Metol	3 grams	44 grains
Sodium Sulfite, anhydrous	44 grams	1½ ounces
Hydroquinone	12 grams	¼ oz. 65 grs.
Sodium Carbonate, monohydrated	65 grams	2 oz. 75 grs.
Potassium Bromide	2 grams	29 grains
Water to make	1 liter	32 ounces

PAPER DEVELOPMENT: For Cykon, Convira, Indiatone, Cykora and Brovira, dilute 1 part stock solution with 2 parts water. Develop 1 to 2 minutes at 68 F. (20 C.). For softer and slower development, dilute 1 to 4, and develop 1½ to 3 minutes at 68 F. (20 C.). For greater brilliance, shorten the exposure slightly and lengthen the developing time. For greater softness, lengthen the exposure slightly and shorten the developing time.

FILM DEVELOPMENT: Dilute 1 part stock solution with 1 part water and develop 3 to 5 minutes at 68 F. (20 C.). For softer results dilute 1 to 3 and develop 3 to 5 minutes at 68 F. (20 C.).

ANSCO 135

WARM-TONED PAPER DEVELOPER

This developer is used for rich, warm-black tones with Convira, Cykon, Cykora, and similar papers.

Stock Solution	Metric	Avoirdupois
Hot Water (125 F. or 52 C.)	750 cc.	24 ounces
Metol	1.6 grams	24 grains
Sodium Sulfite, anhydrous	24 grams	¾ oz. 20 grs.
Hydroquinone	6.6 grams	96 grains
Sodium Carbonate, monohydrated	24 grams	¾ oz. 20 grs.
Potassium Bromide	2.8 grams	40 grains
Water to make	1 liter	32 ounces

For use, dilute 1 part stock solution with 1 part water. A properly exposed print will be fully developed at 68 F. (20 C.) in about 1½ to 2 minutes. For greater softness, dilute the bath with water up to equal quantities of developer and water. To increase the warmth, add bromide up to double the amount of the formula. The quantity of bromide specified in the formula, however, assures rich, warm, well-balanced tones.

ANSCO 204

ACID HARDENING FIXER

This hardening fixing bath for use with either film or paper may be stored indefinitely and used repeatedly until exhausted. If the fixing bath froths, turns cloudy, or takes longer than 10 minutes to fix out completely, it must be replaced by a fresh solution.

	Metric	Avoirdupois
Water (125 F. or 52 C.)	750 cc.	24 ounces
Sodium Thiosulfate	240 grams	8 ounces
Sodium Sulfite	15 grams	½ ounce
Anso 28% Acetic Acid	75 cc.	2½ ounces
Borax	14.5 grams	½ ounce
Potassium Alum	15 grams	½ ounce
Water to make	1 liter	32 ounces

Dissolve chemicals thoroughly in order given and stir rapidly. Do not dilute for use. Normal fixing time 5 to 10 minutes at 68 F. (20 C.). Glacial acetic acid may be diluted to 28% concentration by adding 3 parts of acid to 8 parts of water.

ANSCO 210

ACID SHORT-STOP BATH

This solution is recommended for use between developer and fixer, to prevent staining of film negatives and prints.

	Metric	Avoirdupois
Anso 28% Acetic Acid	45 cc.	1½ ounces
Water to make	1 liter	32 ounces

Glacial Acetic Acid (99.5%) may be diluted to the 28% concentration by mixing three parts of Glacial Acetic Acid with eight parts of water.

ANSCO 221 **SEPIA TONER**

This toner is recommended for warm-brown sepia tones.

<i>Solution 1</i>		
	<i>Metric</i>	<i>Avoirdupois</i>
Hot Water (125 F. or 52 C.)	750 cc.	24 ounces
Anso Ferricyanide	50 grams	1½ oz. 75 grs.
Potassium Bromide	10 grams	¼ oz. 35 grs.
Sodium Carbonate, monohydrated	20 grams	½ oz. 70 grs.
Water to make	1 liter	32 ounces

<i>Solution 2</i>		
Sodium Sulfide	45 grams	1½ ounces
Water to make	500 cc.	16 ounces

For use as described below, dilute one part solution 2 with eight parts water.

IMPORTANT — Be sure to use Sodium Sulfide, not Sulfite, in compounding the Redeveloper. Also, use clean trays, free from exposed iron spots, especially with Bleaching Bath. Otherwise blue spots may form on prints.

Prints should be washed thoroughly and then bleached in Solution 1 until the black image is converted to a very light brown color (about 1 minute). Prints should then be washed for 10 to 15 minutes and redeveloped in diluted Solution 2.

Redevelopment should be complete in about 1 minute. After redeveloping the prints should be washed for about 30 minutes and then dried. If the toner should leave sediment which results in streaks or finger marks on the surface of the paper the print should be immersed for a few seconds in a 3% solution of acetic acid. A washing of about 10 minutes after this procedure is necessary.

ANSCO 310 **FARMER'S REDUCER**

This is a cutting reducer for lessening the density of heavy negatives and at the same time increasing their contrast.

<i>Solution 1</i>		
	<i>Metric</i>	<i>Avoirdupois</i>
Sodium Thiosulfate	240 grams	8 ounces
Water to make	1 liter	32 ounces

<i>Solution 2</i>		
Anso Ferricyanide	19 grams	½ oz. 70 grs.
Water to make	250 cc.	8 ounces

For use mix one part Solution 2 and four parts Solution 1 in 32 parts water. Solutions 1 and 2 should be stored separately and mixed immediately before use.

ANSCO 311 **FLATTENING REDUCER**

This reducer is useful for lessening the density and contrast of heavy negatives.

<i>Solution 1</i>		
	<i>Metric</i>	<i>Avoirdupois</i>
Anso Ferricyanide	35 grams	1 oz. 75 grs.
Potassium Bromide	10 grams	¼ oz. 35 grs.
Water to make	1 liter	32 ounces

Bleach in Solution 1 and after thorough washing, redevelop to desired density and contrast in Anso 47 or other negative developer (fine grain formulas excepted) and fix and wash in the usual manner. Conduct operation in subdued light.

ANSCO 330 **MERCURY INTENSIFIER**

This intensifier is recommended for increasing the printing density of thin, flat negatives.

	<i>Metric</i>	<i>Avoirdupois</i>
Potassium Bromide	10 grams	¼ oz. 35 grs.
*Mercuric Chloride	10 grams	¼ oz. 35 grs.
Water to make	1 liter	32 ounces

Do not dilute for use. Negatives to be intensified must be very thoroughly washed first or yellow stains may result on the intensified negative. Immerse negatives in above solution until entirely bleached so that no black image remains. Then wash in water containing a few drops of hydrochloric acid. Redevelop bleached negatives in 5% sodium sulfite or any standard developer. Surface scum which forms during storage of the bleaching solution does not affect the bleacher but should be removed before using the solution.

*Poison — Danger

ANSCO 332 **CHROMIUM INTENSIFIER**

This formula is recommended because it is convenient in use and gives permanent results.

	<i>Metric</i>	<i>Avoirdupois</i>
Potassium Bichromate	9 grams	¼ oz. 30 grs.
Hydrochloric Acid	6 cc.	1.6 drams
Water to make	1 liter	32 ounces

Immerse negatives in this solution until bleached, wash for 5 minutes in running water, and then redevelop in bright but diffused light in a Metol-Hydroquinone developer such as Anso No. 47. Negatives should then be given a 15-minute wash before drying. Intensification may be repeated for increased effect. If any blue coloration of the film base is noticeable after intensification, it may be easily removed by washing the film for two or three seconds in water containing a few drops of ammonia, in a 5% solution of potassium metabisulfite, or in a 5% solution of sodium sulfite. This treatment should be followed by a thorough washing in water.

ANSCO PHOTOGRAPHIC PAPERS



Ansco papers are manufactured in a number of different types, of which Convira, Cykon, Brovira, Cykora and Indiatone are the most widely-known among experienced amateur and professional photographers.

While each paper has individual characteristics which make it particularly suitable for a given type of work, the beginner in photography may find it difficult to employ these characteristics to best advantage until a certain amount of knowledge has been acquired through experience. Convira and Cykon, for example, are both widely used for contact printing,

and may be used interchangeably. However, they differ in speed and image tone. Similar differences exist among enlarging papers.

CONVIRA—This is a rapid contact printing paper used for obtaining clear, bright, blue-black prints from amateur and professional negatives. Recommended developer: Ansco Vividol. Normal developing time: 45 seconds.

CYKON—This contact printing paper is preferred by many photographers for fine portrait prints because of the unsurpassed warmth and beauty of its rich, brown-black image tones. Recommended developer: Ansco Ardol. Normal developing time: 1½ to 2 minutes.

BROVIRA—This is a fast projection printing paper unexcelled for making crisp, brilliant enlargements having neutral-black image tones. Because of its high speed, Brovira is particularly suitable for high-magnification enlargements from miniature negatives. Recommended developer: Ansco Vividol. Normal developing time: 1 to 2 minutes.

CYKORA—This clean-working chlorobromide paper is the logical selection for photographers who prefer enlargements having warm-black image tones.

Recommended developer: Ansco Ardol. Normal developing time: 1½ to 2 minutes.

INDIATONE—This is a medium-speed projection printing paper designed to produce enlargements having warm, olive-black tones. Indiatone is supplied in one contrast grade, for normal negatives. Recommended developer: Ansco Ardol. Normal developing time: 1½ to 2 minutes.

ANSCO PAPER SURFACES

Ansco papers are provided in a variety of attractive surfaces to aid the photographer in creating a desired effect in the final print. A glossy surface is usually preferred for recording fine detail. Marine and snow scenes and many types of portraits appear to best advantage on a lustrous, finely pebbled paper. Subjects which depend for their effectiveness on broad tonal areas rather than on the reproduction of minute details are frequently printed on papers having a matte or velvet surface.

The following list briefly describes the significant characteristics of the surfaces in which Ansco papers are supplied.

GLOSSY—smooth surface with very high sheen.

SILK WHITE—Silk-like surface with high sheen.

KASHMIR WHITE—Lustrous, finely pebbled surface.

KASHMIR IVORY—Lustrous, finely pebbled surface on ivory stock.

VELVET—Smooth, semi-matte surface.

CYLTEX—Moderate lustre, irregular textured surface.

CONTRAST GRADES OF ANSCO PHOTOGRAPHIC PAPERS

Ansco contact and enlarging papers are supplied in several contrast grades to permit prints of the best possible quality from negatives of varying contrast characteristics.

Contrast No. 0 (Extra Soft) for printing from extremely contrasty or hard negatives, or when especially soft results are desired.

Contrast No. 1 (Soft) for use with hard, contrasty negatives.

Contrast No. 2 (Medium) for use with normal to medium hard negatives.

Contrast No. 3 (Medium Hard) for use with normal negatives.

Contrast No. 4 (Hard) for use with soft, thin or flat negatives.

Contrast No. 5 (Extra Hard) for use with extremely thin, weak and flat negatives, to give prints of normal contrast. It is also useful for printing silhouettes and similar work that requires great contrast.